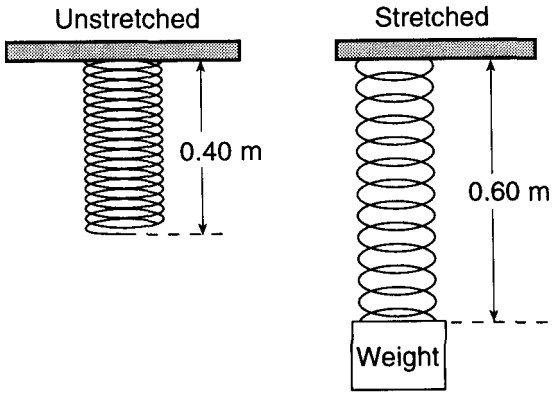
Springs & Energy

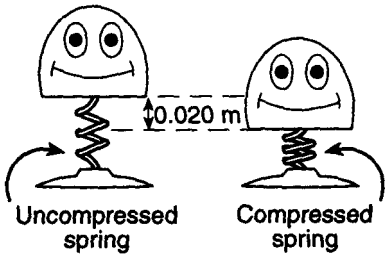
1. The unstretched spring in the diagram below has a length of 0.40 meter and spring constant k. A weight is hung from the spring, causing it to stretch to a length of 0.60 meter.



How many joules of elastic potential energy are stored in this stretched spring?

1) $0.020 \times k$
2) $0.080 \times k$
3) $0.18 \times k$
4) $2.0 \times k$

2. In the diagram below, a student compresses the spring in a pop-up toy 0.020 meter.



If the spring has a spring constant of 340 newtons per meter, how much energy is being stored in the spring?

1) 0.068 J
2) 0.14 J
3) 3.4 J
4) 6.8 J

3. When a spring is stretched 0.200 meter from its equilibrium position, it possesses a potential energy of 10.0 joules. What is the spring constant for this spring?

1) 100. N/m
2) 125 N/m
3) 250. N/m
4) 500. N/m

4. What is the spring constant of a spring of negligible mass which gained 8 joules of potential energy as a result of being compressed 0.4 meter?

1) 100 N/m
2) 50 N/m
3) 0.3 N/m
4) 40 N/m

Springs & Energy
Answer Key
[New Exam]

1. 1
2. 1
3. 4
4. 1